

1 1. A method for determining whether a compound can
2 be used to modulate body weight, comprising:
3 a) measuring expression level of one or more genes
4 selected from the group consisting of LIG46, LIG56, Tgtp,
5 LRG-47, RC10-II, and Stra13 in a cell sample in the presence
6 and absence of the compound; and
7 b) identifying the compound as useful for
8 modulating body weight when the expression level of the
9 selected one or more genes in the presence of the compound
10 differs from the expression level of the selected one or
11 more genes in the absence of the compound.

1 2. The method of claim 1 wherein the cells in the
2 cell sample are neuronal cells.

1 3. The method of claim 1 wherein the cells express
2 Ob receptor.

1 4. The method of claim 3 wherein expression is
2 measured in the presence of leptin.

1 5. A method for determining whether a compound can
2 be used to modulate body weight, comprising:
3 a) measuring activity of one or proteins selected
4 from the group consisting of LIG46, LIG56, Tgtp, LRG-47,
5 RC10-II, and Stra13 in a sample in the presence and absence
6 of the compound; and
7 b) identifying the compound as useful for
8 modulating body weight when the activity of the selected one
9 or more proteins in the presence of the compound differs
10 from the activity of the selected one or more protein in the

11 absence of the compound.

1 6. The method of claim 5 wherein the sample
2 comprises cells and said cells are neuronal cells.

1 7. The method of claim 6 wherein the cells express
2 Ob receptor.

1 8. The method of claim 7 wherein activity is
2 measured in the presence of leptin.

1 9. A method for determining whether a compound can
2 be used to modulate body weight, comprising:

3 a) measuring expression level of one or more genes
4 selected from the group consisting of LIG46, LIG56, Tgtp,
5 LRG-47, RC10-II, and Stral3 in sample of cells isolated from
6 a mammal treated with the compound and in a sample of cells
7 isolated from an untreated mammal; and
8 b) identifying the compound as useful for
9 modulating body weight when the expression level of the
10 selected one or more genes in the sample of cells isolated
11 from the treated mammal differs from the expression of the
12 selected one or more genes in the sample of cells isolated
13 from the untreated mammal.

1 10. The method of claim 9 wherein the cells in the
2 sample are neuronal cells.

1 11. The method of claim 9 wherein the mammal is a
2 mouse.

12. A method for determining whether a compound can be used to modulate body weight, comprising:

- a) measuring activity level of one or more proteins selected from the group consisting of LIG46, LIG56, Tgtp, LRG-47, RC10-II, and Stra13 in sample of cells isolated from a mammal treated with the compound and in a sample of cells isolated from an untreated mammal; and
- b) identifying the compound as useful for modulating body weight when the activity level of the selected one or more proteins in the sample of cells isolated from the treated mammal differs from the activity level of the one or more selected proteins in the sample of cells isolated from the untreated mammal.

13. The method of claim 12 wherein the cells in the sample are neuronal cells.

14. The method of claim 12 wherein said mammal is a mouse.

15. An isolated nucleic acid molecule selected from the group consisting of:

- a) a nucleic acid molecule comprising a nucleotide sequence which is at least 55% identical to the nucleotide sequence of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, or SEQ ID NO:7, or a complement thereof;
- b) a nucleic acid molecule comprising a fragment of at least 300 nucleotides of the nucleotide sequence of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, or SEQ ID NO:7, or a complement thereof;
- c) nucleic acid molecule which encodes a

12 polypeptide comprising the amino acid sequence of SEQ ID
13 NO:2 or SEQ ID NO:4 or SEQ ID NO:6;
14 d) a nucleic acid molecule which encodes a
15 fragment of a polypeptide comprising the amino acid sequence
16 of SEQ ID NO:2, SEQ ID NO:4, or SEQ ID NO:6, wherein the
17 fragment comprises at least 15 contiguous amino acids of SEQ
18 ID NO:2, SEQ ID NO:4 or SEQ ID NO:6; and
19 e) a nucleic acid molecule which encodes a
20 naturally occurring allelic variant of a polypeptide
21 comprising the amino acid sequence of SEQ ID NO:2, SEQ ID
22 NO:4, or SEQ ID NO:6, wherein the nucleic acid molecule
23 hybridizes to a nucleic acid molecule comprising SEQ ID NO:1
24 or SEQ ID NO:3 under stringent conditions.

1 16. The isolated nucleic acid molecule of claim 15,
2 which is selected from the group consisting of:
3 a) a nucleic acid comprising the nucleotide
4 sequence of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, or SEQ ID
5 NO:7, or a complement thereof; and
6 b) a nucleic acid molecule which encodes a
7 polypeptide comprising the amino acid sequence of SEQ ID
8 NO:2, SEQ ID NO:4, or SEQ ID NO:6.

1 17. The nucleic acid molecule of claim 15 further
2 comprising vector nucleic acid sequences.

1 18. The nucleic acid molecule of claim 15 further
2 comprising nucleic acid sequences encoding a heterologous
3 polypeptide.

1 19. A host cell which contains the nucleic acid

2 molecule of claim 15.

1 20. The host cell of claim 19 which is a mammalian
2 host cell.

1 21. A non-human mammalian host cell containing the
2 nucleic acid molecule of claim 15.

1 22. An isolated polypeptide selected from the group
2 consisting of:

3 a) a fragment of a polypeptide comprising the
4 amino acid sequence of SEQ ID NO:2, SEQ ID NO:4, or SEQ ID
5 NO:6, wherein the fragment comprises at least 15 contiguous
6 amino acids of SEQ ID NO:2, SEQ ID NO:4, or SEQ ID NO:6;

7 b) a naturally occurring allelic variant of a
8 polypeptide comprising the amino acid sequence of SEQ ID
9 NO:2, SEQ ID NO:4, or SEQ ID NO:6, wherein the polypeptide
10 is encoded by a nucleic acid molecule which hybridizes to a
11 nucleic acid molecule comprising SEQ ID NO:1, SEQ ID NO:3,
12 SEQ ID NO:5, or SEQ ID NO:7 under stringent conditions;

13 c) a polypeptide which is encoded by a nucleic
14 acid molecule comprising a nucleotide sequence which is at
15 least 55% identical to a nucleic acid comprising the
16 nucleotide sequence of SEQ ID NO:1, SEQ ID NO:3, SEQ ID
17 NO:5, or SEQ ID NO:7.

1 23. The isolated polypeptide of claim 22 comprising
2 the amino acid sequence of SEQ ID NO:2, SEQ ID NO:4, or SEQ
3 ID NO:6.

1 24. The polypeptide of claim 22 further comprising

2 heterologous amino acid sequences.

1 25. An antibody which selectively binds to a
2 polypeptide of claim 22.

1 26. A method for producing a polypeptide selected
2 from the group consisting of:

3 a) a polypeptide comprising the amino acid
4 sequence of SEQ ID NO:2, SEQ ID NO:4, or SEQ ID NO:6;

5 b) a fragment of a polypeptide comprising the
6 amino acid sequence of SEQ ID NO:2, SEQ ID NO:4, or SEQ ID
7 NO:6, wherein the fragment comprises at least 15 contiguous
8 amino acids of SEQ ID NO:2, SEQ ID NO:4, or SEQ ID NO:6; and

9 c) a naturally occurring allelic variant of a
10 polypeptide comprising the amino acid sequence of SEQ ID
11 NO:2, SEQ ID NO:4, or SEQ ID NO:6, wherein the polypeptide
12 is encoded by a nucleic acid molecule which hybridizes to a
13 nucleic acid molecule comprising SEQ ID NO:1, SEQ ID NO:3,
14 SEQ ID NO:5, or SEQ ID NO:7 under stringent conditions;
15 comprising culturing a host comprising a DNA
16 molecule encoding the polypeptide under conditions in which
17 the nucleic acid molecule is expressed.

1 27. The isolated polypeptide of claim 22 comprising
2 the amino acid sequence of SEQ ID NO:2, SEQ ID NO:4, or SEQ
3 ID NO:6.

1 28. A method for detecting the presence of a
2 polypeptide of claim 22 in a sample, comprising:

3 a) contacting the sample with a compound which
4 selectively binds to a polypeptide of claim 22; and

5 b) determining whether the compound binds to the
6 polypeptide in the sample.

1 29. The method of claim 28, wherein the compound
2 which binds to the polypeptide is an antibody.

1 30. A kit comprising a compound which selectively
2 binds to a polypeptide of claim 22 and instructions for use.

1 31. A method for detecting the presence of a
2 nucleic acid molecule of claim 15 in a sample, comprising
3 the steps of:

4 a) contacting the sample with a nucleic acid probe
5 or primer which selectively hybridizes to the nucleic acid
6 molecule; and

7 b) determining whether the nucleic acid probe or
8 primer binds to a nucleic acid molecule in the sample.

1 32. The method of claim 31, wherein the sample
2 comprises mRNA molecules and is contacted with a nucleic
3 acid probe.

1 33. A kit comprising a compound which selectively
2 hybridizes to a nucleic acid molecule of claim 15 and
3 instructions for use.

1 34. A method for identifying a compound which binds
2 to a polypeptide of claim 22 comprising the steps of:

3 a) contacting a polypeptide, or a cell expressing
4 a polypeptide of claim 22 with a test compound; and

5 b) determining whether the polypeptide binds to

6 the test compound.

1 35. The method of claim 34, wherein the binding of
2 the test compound to the polypeptide is detected by a method
3 selected from the group consisting of:

4 a) detection of binding by direct detecting of
5 test compound/polypeptide binding; and

6 b) detection of binding using a competition
7 binding assay.

1 36. A method for modulating the activity of a
2 polypeptide of claim 22 comprising contacting a polypeptide
3 or a cell expressing a polypeptide of claim 22 with a
4 compound which binds to the polypeptide in a sufficient
5 concentration to modulate the activity of the polypeptide.

1 37. A method for treating a weight disorder
2 comprising administering a molecule which reduces expression
3 of activity of protein selected from the group consisting of
4 LIG46, LIG56, Tgtp, LRP-47, RC10-II, and Stra13.

1 38. The method of claim 37 wherein said molecule is
2 an antisense molecule.

1 39. The method of claim 37 further comprising
2 administering leptin.